

1 What is claimed is:

2 1. An apparatus for applying an additive material to a continuous advancing strip of a paper
3 web within a cigarette making machine, the apparatus comprising:

4 a first roller adapted to receive the additive material on at least a portion of its roll face;

5 a second roller adjacent to the first roller adapted to receive the additive material to at
6 least a portion of its roll face; and

7 a third roller adapted to (a) receive the additive material to desired locations on its roll
8 face from the roll face of the second roller and (b) apply that additive material to the continuous
9 advancing strip of paper web.

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11 2. The apparatus of claim 1, further comprising a fourth roller having a roll face

12 (a) located in roll contact with the third roller and

13 (b) positioned such that the continuous advancing strip of a paper web passes between the
14 roll faces of the third and fourth rollers.

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16 3. The apparatus of claim 1, wherein the strip of a paper web has an inside major surface
17 and an outside major surface, and the apparatus is adapted so as to apply the additive material to
18 the inside major surface of the strip of a paper web.

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20 4. The apparatus of claim 2, wherein the strip of a paper web has an inside major surface
21 and an outside major surface, and the apparatus is adapted so as to apply the additive material to
22 the inside major surface of the strip of a paper web.

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24 5. The apparatus of claim 1, wherein the third roller

25 (a) possesses dies protruding outwardly from its roll face, each die having a roll face,

26 (b) is adapted to receive the additive material from the roll face of the second roller on
27 the roll faces of the dies,

28 (c) has the roll faces of the dies in roll contact with the second roller,

29 (d) has the roll faces of the dies in contact with the paper web, and

30 (e) is adapted to transfer the additive material from the roll faces of the dies to the paper
31 web.

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2 6. The apparatus of claim 5, further comprising a fourth roller having a roll face
3 (a) located in roll contact with the third roller and
4 (b) positioned such that the continuous advancing strip of a paper web passes between the
5 roll faces of the third and fourth rollers.

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7 7. The apparatus of claim 5, wherein the strip of a paper web has an inside major surface
8 and an outside major surface, and the apparatus is adapted so as to the apply additive material to
9 the inside major surface of the strip of a paper web.

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11 8. The apparatus of claim 1, comprising
12 a reservoir for containing the additive material and supplying the additive material to at
13 least a portion of the roll face of the second roller;
14 the third roller
15 (a) possessing dies protruding outwardly from its roll face, each die having a roll face,
16 (b) adapted to receive the additive material from the roll face of the second roller on the
17 roll faces of the dies,
18 (c) having the roll faces of the dies in roll contact with the second roller,
19 (d) having the roll faces of the dies in contact with the paper web, and
20 (e) adapted to transfer the additive material from the roll faces of the dies to the paper
21 web;
22 a means for contacting the roll faces of the dies of the third roller with the roll face of the
23 second roller; and
24 a means for contacting the roll faces of the dies of the third roller with the paper web.

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26 9. The apparatus of claim 8, wherein the dies are positioned a predetermined distance apart
27 in a die pattern, and wherein when the roll faces of the dies contact the paper web, the additive
28 material on each roll face is transferred to the paper web to form a pattern of a plurality of
29 spaced-apart bands corresponding to the predetermined die pattern.
30

1 10. An apparatus for applying an additive material to a continuous advancing strip of a paper
2 web within a cigarette making machine, the apparatus comprising:

3 a first roller adapted to receive the additive material on at least a portion of its roll face;

4 a second roller having a roll face and being in roll contact with the first roller;

5 a means for supplying the additive material to at least a portion of the roll face of the
6 second roller;

7 a third roller having a roll face and being in roll contact with the second roller;

8 a means for transferring some of the additive material on the roll face of the second roller
9 to the third roller at predetermined locations on the roll face of the third roller; and

10 a means for providing transfer of the additive material on the predetermined locations on
11 the roll face of the third roller to desired regions of the paper web.

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13 11. The apparatus of claim 10, further comprising a fourth roller having a roll face

14 (a) located in roll contact with the third roller and

15 (b) positioned such that the paper web passes between the roll faces of the third and
16 fourth rollers.

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18 12. The apparatus of claim 10, wherein the paper web has an inside major surface and an
19 outside major surface, and the apparatus is adapted so as to apply the additive material to the
20 inside major surface of the paper web.

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22 13. The apparatus of claim 11, wherein the paper web has an inside major surface and an
23 outside major surface, and the apparatus is adapted so as to apply the additive material to the
24 inside major surface of the paper web.

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26 14. An apparatus for manufacturing a continuous cigarette rod, the apparatus comprising:

27 a bobbin for supplying a continuous strip of a paper web;

28 a garniture region;

29 an apparatus for applying an additive material to the continuous strip of a paper web, the
30 applicator apparatus

1 (a) being located between the bobbin and the garniture region such that the paper
2 web supplied by the bobbin has the additive material applied thereto prior to entering the
3 garniture region;

4 (b) having a first roller adapted to receive the additive material on at least a
5 portion of its roll face,

6 (c) having a second roller adjacent to the first roller adapted to receive the
7 additive material to at least a portion of its roll face, and

8 (d) having a third roller adapted to (i) receive the additive material to desired
9 locations on its roll face from the roll face of the second roller and (ii) apply that additive
10 material to the continuous strip of a paper web.

11
12 15. The apparatus of claim 14, further comprising a fourth roller having a roll face
13 (a) located in roll contact with the third roller and
14 (b) positioned such that the paper web passes between the roll faces of the third and
15 fourth rollers.

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17 16. The apparatus of claim 14, wherein the paper web has an inside major surface and an
18 outside major surface, and the apparatus is adapted so as to apply the additive material to the
19 inside major surface of the paper web.

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21 17. The apparatus of claim 14, comprising a means for maintaining the first and second
22 rollers in roll contact, and a means for maintaining the second and third rollers in roll contact.

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24 18. The apparatus of claim 14, wherein the first roller possesses a roll face having a width
25 and a peripheral circumference, the first roller further possessing a continuous groove in its roll
26 face, the groove extending across a portion of the width of the roll face and completely
27 circumscribing the peripheral circumference of the roll face.

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29 19. A method for applying an additive material to a continuous advancing strip of a paper
30 web within a cigarette making machine, the method comprising:

1 providing a first roller adapted to receive the additive material on at least a portion of its
2 roll face;

3 providing a second roller adjacent to the first roller adapted to receive the additive
4 material to at least a portion of its roll face;

5 providing a third roller adapted to
6 (a) receive the additive material to desired locations on its roll face from the roll
7 face of the second roller and

8 (b) apply that additive material to the continuous advancing strip of paper web;
9 and

10 operating the rollers such that additive material is supplied to a region on the roll face of
11 the second roller, the additive material is transferred from the second roller in a predetermined
12 manner, and the additive material is transferred from the roll face of the third roller to the
13 continuous advancing strip of a paper web in a predetermined manner.

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15 20. A method for applying an additive material to a continuous advancing strip of a paper
16 web within a cigarette making machine, the method comprising:

17 providing a first roller having a roll face;
18 providing a second roller having a roll face;
19 providing a third roller having a roll face;
20 rotating the first second and third rollers;
21 supplying the additive material to the roll face of the second roller through roll interaction
22 of the first roller with the second roller;

23 supplying the additive material to predetermined locations on the roll face of the third
24 roller through roll interaction of the second roller with the third roller;

25 continuously advancing the strip of a paper web so as to provide a moving strip of paper
26 web; and

27 contacting the roll face of the third roller with the moving strip of paper web so as to
28 transfer in additive material to the web in a predetermined pattern.

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30 21. A method for applying an additive material to a continuous advancing strip of a paper
31 web within a cigarette making machine, comprising the steps of:

1 supplying the continuous advancing strip of a paper web;
2 providing a first roller having a roll face;
3 providing a second roller having a roll face;
4 providing an additive reservoir adjacent to the first roller for containing the additive
5 material;
6 supplying the additive material to the roll face of the second roller through roll interaction
7 of the first roller with the second roller;
8 providing a third roller
9 (a) having dies protruding from the third roller, each die having a roll face,
10 (b) adapted to receive the additive material from the roll face of the second roller
11 on the roll faces of the dies,
12 (c) having the roll faces of the dies in roll contact with the second roller,
13 (d) having the roll faces of the dies in contact with the paper web, and
14 (e) adapted to transfer the additive material from the roll faces of the dies to the
15 paper web;
16 transferring the additive material from the roll face of the second roller to the roll faces of
17 the dies by contacting the roll faces of the dies of the third roller with the roll face of the second
18 roller; and
19 transferring the additive material to the paper web by contacting the roll faces of the dies
20 of the second roller with the paper web.